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G07F 17/34

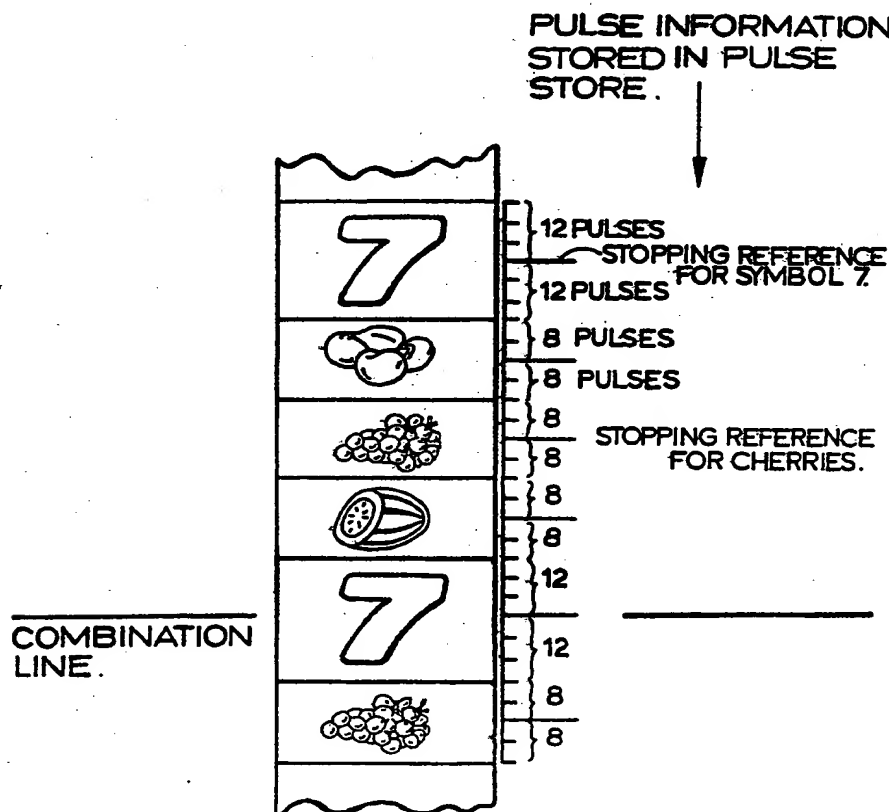
(52) UK CL (Edition K)
G4V VAA V118
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(56) Documents cited
GB 2193025 A -EP 0354651 A2

(58) Field of search
UK CL (Edition K) G4V VAA
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(54) Multi-size reel symbols for fruit machines

(57) A fruit machine reel (or disc or belt) displays some symbols such as a jackpot symbol (7) larger than adjacent symbols (cherries etc) by varying the circumferential spacing between the centres or designated stopping positions of the symbols around the reel. The spacing between the larger and smaller symbols is kept approximately uniform by allotting a larger number of reel indexing pulses to the larger symbols than to the smaller symbols.

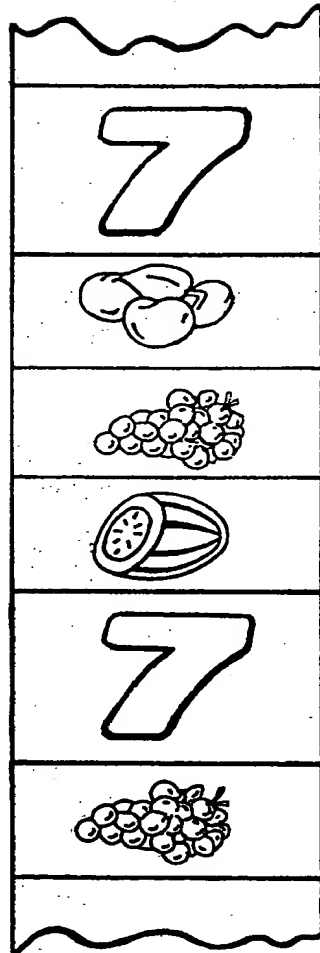


At least one drawing originally filed was informal and the print reproduced here is taken from a later filed formal copy.
The claims were filed later than the filing date within the period prescribed by Rule 25(1) of the Patents Rules 1990.

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PULSE INFORMATION
STORED IN PULSE
STORE.



12 PULSES
STOPPING REFERENCE
FOR SYMBOL 7.
12 PULSES

8 PULSES
8 PULSES

8
8 STOPPING REFERENCE
FOR CHERRIES.

8
8

12

12

8
8

COMBINATION
LINE.

AMUSEMENT AND GAMING MACHINES

5 This invention relates to amusement and gaming machines of the type
commonly called 'fruit machines' in which at least one rotatable
reel bearing circumferentially spaced-apart symbols, which are not
necessarily fruits, is caused to be rotated, and a prize is awarded
in dependence upon the position in which the reel comes to rest or
is arrested. (The reel may be replaced by a disc or belt, and the
10 invention does apply to such machines, but for convenience the
invention will be described in relation to a reel.) Such a machine
will hereinafter be referred to as 'a machine of the kind set forth.

15 We have realised that it would be desirable for certain symbols on a
reel, such as a jackpot symbol, to be made larger than other symbols
whilst maintaining a reasonably uniform circumferential spacing
between the symbols. Conventionally, symbols are of approximately
the same size and are approximately equally spaced apart in the
circumferential direction.

20 In current machines the reels are driven by stepping motors and each
reel is driven to a stopping position determined by a random number
generator, the requisite number of pulses being counted or generated
to give the stopping position determined by the random number
25 generator. A predetermined number of pulses is assigned to the
circumferential spacing between the centres of the adjacent symbols
on a reel, and that number is the same for all adjacent pairs of
symbols. Essentially we now propose to assign a varying number of
pulses to the circumferential spacing between the centres of
30 adjacent pairs of symbols to enable larger and smaller symbols to be
accommodated on the reel.

According to one aspect of the invention in a machine of the kind
set forth the circumferential spacing between the centres of
35 adjacent reel symbols varies around the reel.

According to a second aspect of the invention in a machine of the kind set forth the stopping positions of the reel are determined by counting or generating pulses, and the number of pulses assigned to the circumferential spacing between adjacent stopping positions of the reel varies around the reel.

The machine comprises a pulse store in which is held a record of the number of pulses corresponding to each symbol position to enable a reel controller to drive the reel to a required stopping position as determined by a random number generator. It will be appreciated that the information on said pulse numbers may be stored in different ways. For example, it could comprise a series of pulse counts corresponding to the circumferential positions of the respective symbols from a datum position on the reel. That is, the actual symbol spacings in terms of pulses may not as such be stored.

The chances of a reel stopping in a predetermined position may be varied by a stabiliser means as set forth in Patent Specification No. 1,454,046.

Of course, if large and small symbols alternated in a regular manner on a reel, it would be possible to have a uniform spacing between the symbols whilst retaining a constant circumferential spacing between the symbols, but the invention enables one or a small number of large symbols to be displayed on a reel whilst maintaining an approximately uniform circumferential spacing between the symbols.

In conventional microprocessor-controlled fruit machines 200 pulse steps most often correspond to one rotation of the reel. Most commonly 20 symbols are provided on the reel and ten pulse steps are allotted to each symbol. Machines with 25 symbols on a reel are known, eight pulse steps being allotted to each symbol.

If desired, the invention would enable a larger circumferential spacing to be provided between a large symbol and the adjacent symbols, so as to enhance the appearance of the large symbol. However, in general this will not be required because many machine
5 features, such as the 'nudge' feature, require adjacent reel symbols to be visible to the machine player when the reel/s are first arrested.

It will be appreciated that existing fruit machines might be
10 converted to operate in accordance with the invention by supplying a suitable translator, including said pulse store, for the reel stopping positions and by supplying replacement reel bands.

A fruit machine in accordance with the invention will now be
15 described, by way of example only, with reference to the accompanying schematic drawing which shows a length of a reel band with the corresponding pulse spacings between symbols alongside it.

20 In the exemplary machine there are four rotatable reels each having secured to it a reel band printed with reel symbols. In the reel band shown, the symbol 7 has been depicted as larger than the other symbols because the symbol 7 can give rise to a larger prize, and it is desired to present the symbol 7 such that it stands out from the
25 other symbols.

With this machine, 200 pulse steps corresponds to one complete rotation of the reel. An arc of 24 pulses has been allotted to the larger symbol 7 whereas the other, smaller symbols have been
30 allotted an arc of just 16 pulses each.

Thus, there is a large pulse difference between the pulses allotted to different symbols, thereby enabling the symbol 7 to be displayed significantly larger than the other symbols on the reel.

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CLAIMS

5 1. A machine of the kind set forth in which the circumferential spacing between the centres or designated stopping positions of adjacent reel symbols varies around the reel.

10 2. A machine as claimed in claim 1 in which the designated stopping positions are determined by counting or generating pulses, and the number of pulses assigned to said spacing varies around the reel.

3. A machine as claimed in claim 1 or claim 2 in which at least one symbol is significantly larger than adjacent symbols.

15 4. A machine of the kind set forth and substantially as described with reference to the accompanying drawings.

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Patents Act 1977

**Examiner's report to the Comptroller under
Section 17 (The Search Report)**

Application number

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Relevant Technical fields

(i) UK Cl (Edition K) G4V (VAA)

(ii) Int Cl (Edition 5) G07F 17/34

Search Examiner

S R SMITH

Databases (see over)

(i) UK Patent Office

(ii)

Date of Search

24 DECEMBER 1991

Documents considered relevant following a search in respect of claims

1-4

Category (see over)	Identity of document and relevant passages	Relevant to claim(s)
X	GB 2193025 A (AINSWORTH) See whole document	1-4
X	EP 0354651 A2 (SIGMA) See especially Figure 5 and line 23 of column 6 to line 9 of column 7	1-4

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Category	Identity of document and relevant passages

Categories of documents

X: Document indicating lack of novelty or of inventive step.

Y: Document indicating lack of inventive step if combined with one or more other documents of the same category.

A: Document indicating technological background and/or state of the art.

P: Document published on or after the declared priority date but before the filing date of the present application.

E: Patent document published on or after, but with priority date earlier than, the filing date of the present application.

&: Member of the same patent family, corresponding document.

Databases: The UK Patent Office database comprises classified collections of GB, EP, WO and US patent specifications as outlined periodically in the Official Journal (Patents). The on-line databases considered for search are also listed periodically in the Official Journal (Patents).